

FAS – Office of Global Analysis (OGA)  
United States Department of Agriculture (USDA)  
International Operational Agriculture Monitoring Program



**March Report – Week 3**

**March 20<sup>th</sup>, 2009**

1. The current outlook for MY 2009/10 winter grain production (wheat and barley) in Iraq is similar to worse than last year's drought-affected crop. Less than adequate rainfall and/or irrigation supply during the current winter season has resulted in similarly poor or worse vegetative crop conditions than last year over large regional areas, particularly in the southern irrigated provinces. It appears that total irrigated grain area will decline in MY2009/10 and that poor yields relative to last year in some of the highest yielding irrigated crop areas will prevent a recovery in national winter grain production. Though winter grain production prospects are improved in some northern rainfed growing provinces this year, it is anticipated that production shortfalls in the south will be greater in size. Generally poor current crop conditions are expected to result in well below-normal national grain production.
2. Cumulative precipitation for MY 2009/10 is slightly higher than the previous year, but remains below normal. Although recent rain events during late-February and early-March brought needed precipitation to the northern rainfed governorates and slightly increased season-to-date precipitation, overall rainfall conditions remain well below normal (Appendix). Rainfall accumulation over the next few weeks will be critical in determining the final outlook for crop yields in Iraq, but time is limited for a significant crop recovery. Light showers averaging between 10mm and 25mm are expected over the next week (Figure 1). However, this is not expected to be enough to alleviate the existing rainfall deficit.
3. Regional NDVI time-series images reveal there is currently much less crop vigor and abundance than the previous benchmark year of MY 2006/07, when Iraq produced a normal sized wheat crop of 2.5 million tons. As of March 6<sup>th</sup> 2009, MODIS NDVI remained especially low in the northwest and central provinces (Figure 2). A more detailed change analysis comparing the current MY 2009/10 with the previous benchmark years of MY 2005/06 and MY 2006/07 revealed significantly less vegetation abundance in the northern provinces of Ninawa, Arbil, and the central province of At Ta'min, which cumulatively produce up to 35% of total wheat and 49% of total barley (Figure 3).

High resolution imagery collected over the major producing provinces of Ninawa, Arbil, and At Ta'min during the month of March were used for detailed cropland comparison between MY 2009/10 and the previously drought affected season of MY 2008/09. These three areas of interest (AOI) were also sampled over several years using MODIS NDVI to provide a more seasonal comparative analysis (Figure 4).

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\*Note: red coloration in high resolution imagery indicates vegetation.

Ninawa (AOI #5) is normally the nation's largest winter grain producer, and it experienced almost total crop devastation last year. The fact that most of Ninawa's grain producing areas are currently showing similarly poor vegetative development this year indicates that either crops did not get sown over widespread areas or rainfall has been well-below actual crop requirements (Figure 5).

Arbil (AOI #8) typically produces a moderate 5% of total wheat, but more importantly produces roughly 14% of total national barley production, making this province the second largest barley producer. Although Arbil was heavily affected by drought conditions last year which caused a 55% decrease in wheat and 97% decrease in barley production, high resolution imagery from last year (April 4<sup>th</sup>, 2008) showed that some crop emerged. However, imagery for the current year, March 17<sup>th</sup>, 2009, shows significantly less crop abundance and lower vigor. Time-series data also indicate that the cropland in this region is currently doing poor (Figure 6). \*Note that the winter grains crop in Arbil peaks later than other regions, typically in late-April; therefore, a slight recovery is possible with decent rains, but well-below normal production is expected.

At Ta'min is a minor barley producer, but major wheat producer which typically contributes 10% of total national production. Last year's drought conditions reduced the winter grains crop by over 40% in this province. High resolution imagery comparing March 2009 to the previous year shows similar conditions, but NDVI time-series data indicates that conditions are similar to worse than last year, and well below normal (Figure 7).

## 7-Day Precipitation Outlook: March 20th, 2009

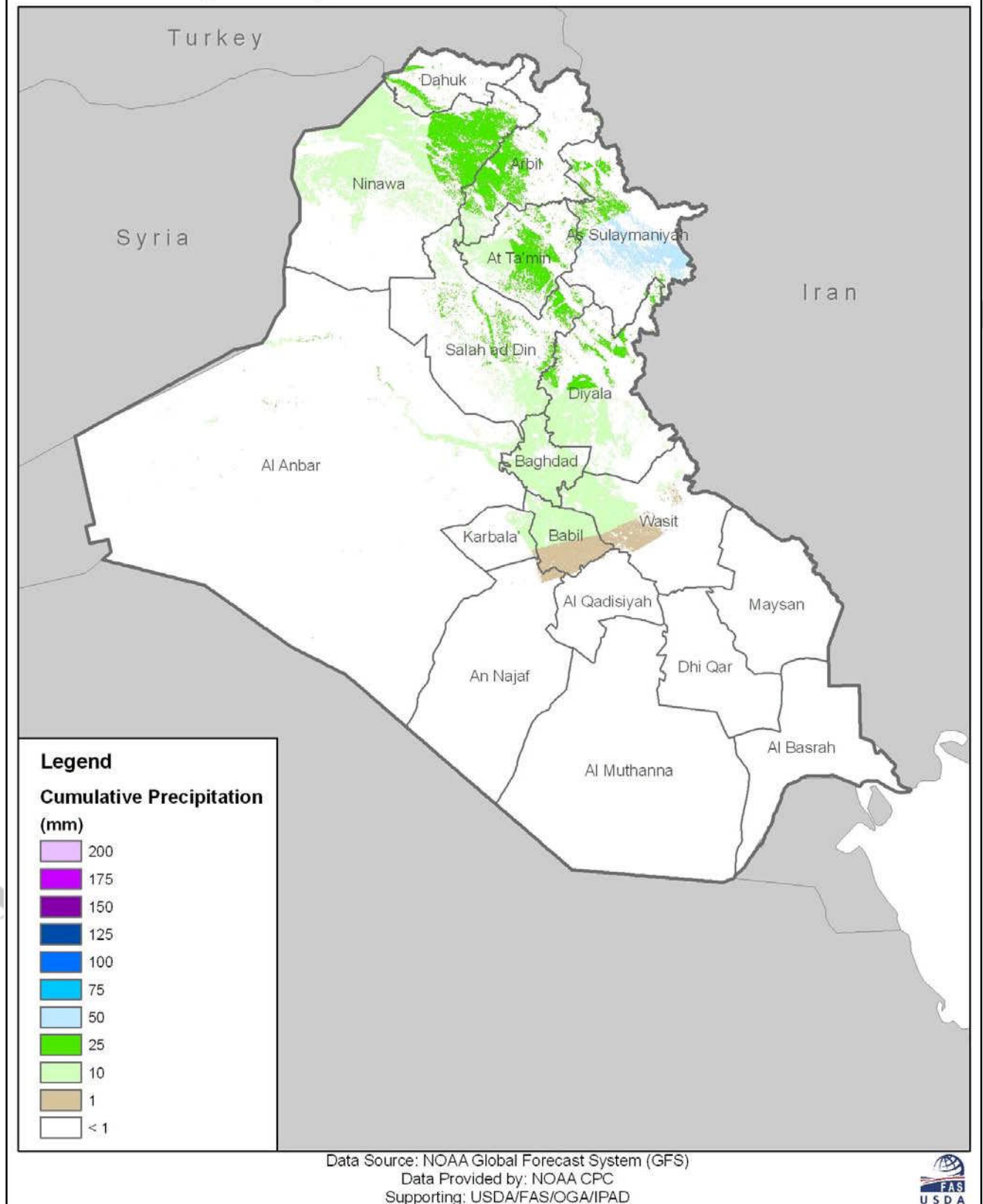


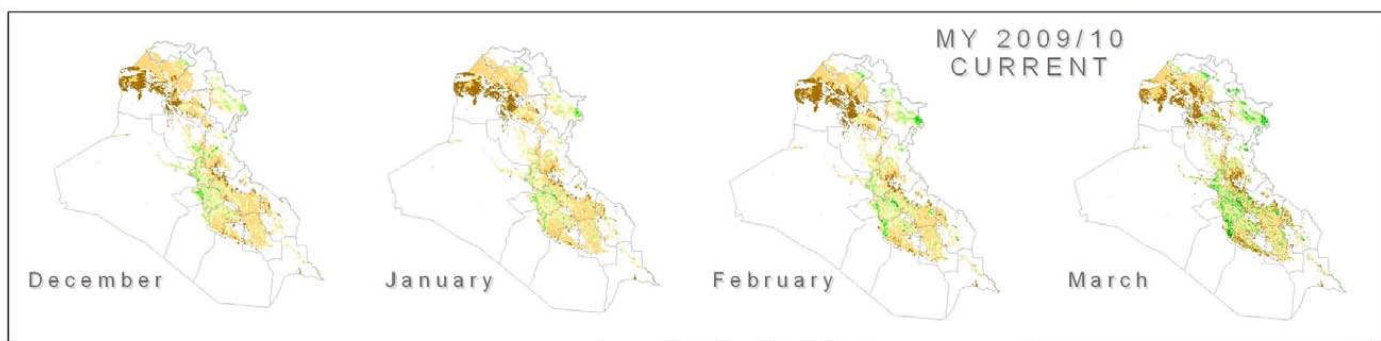
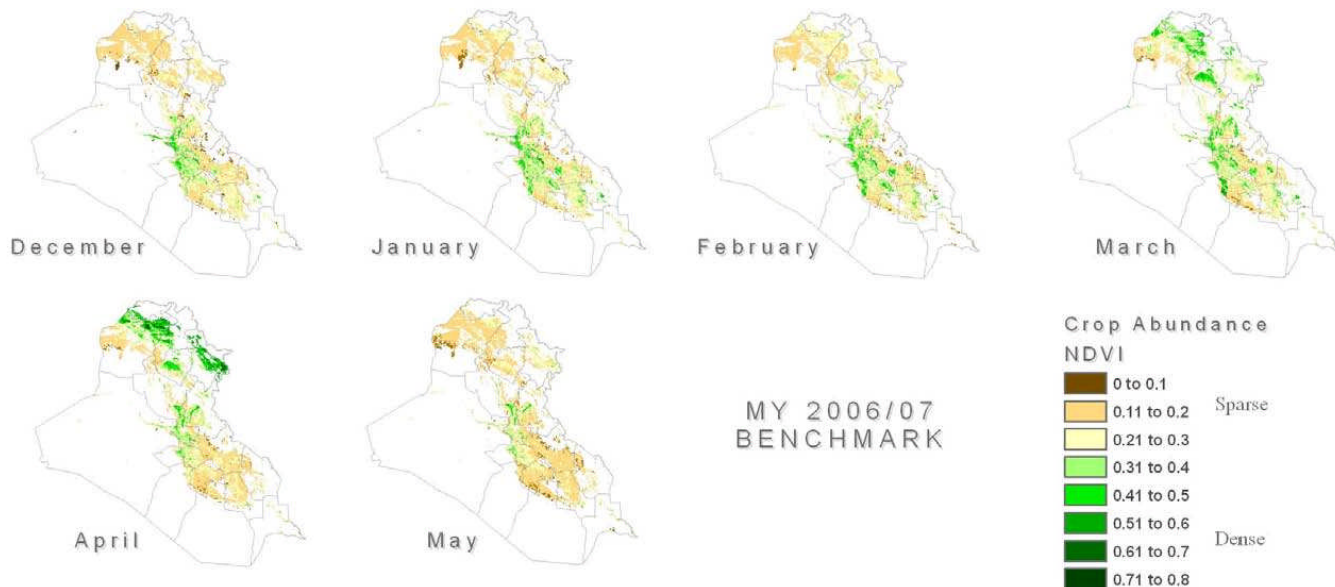
Figure 1: Weekly precipitation forecast as of March 20th, 2009.

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Figure 2: Regional perspective of seasonal NDVI: Current MY 2009/10 compared with benchmark year MY 2006/07.

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## MODIS NDVI Time Series: MY 2009/10 vs. MY 2006/07 Benchmark



Data Source: MODIS NDVI 250-meter  
 Data Provided by: University of Maryland  
 Supporting: USDA/FAS/OGA/IPAD





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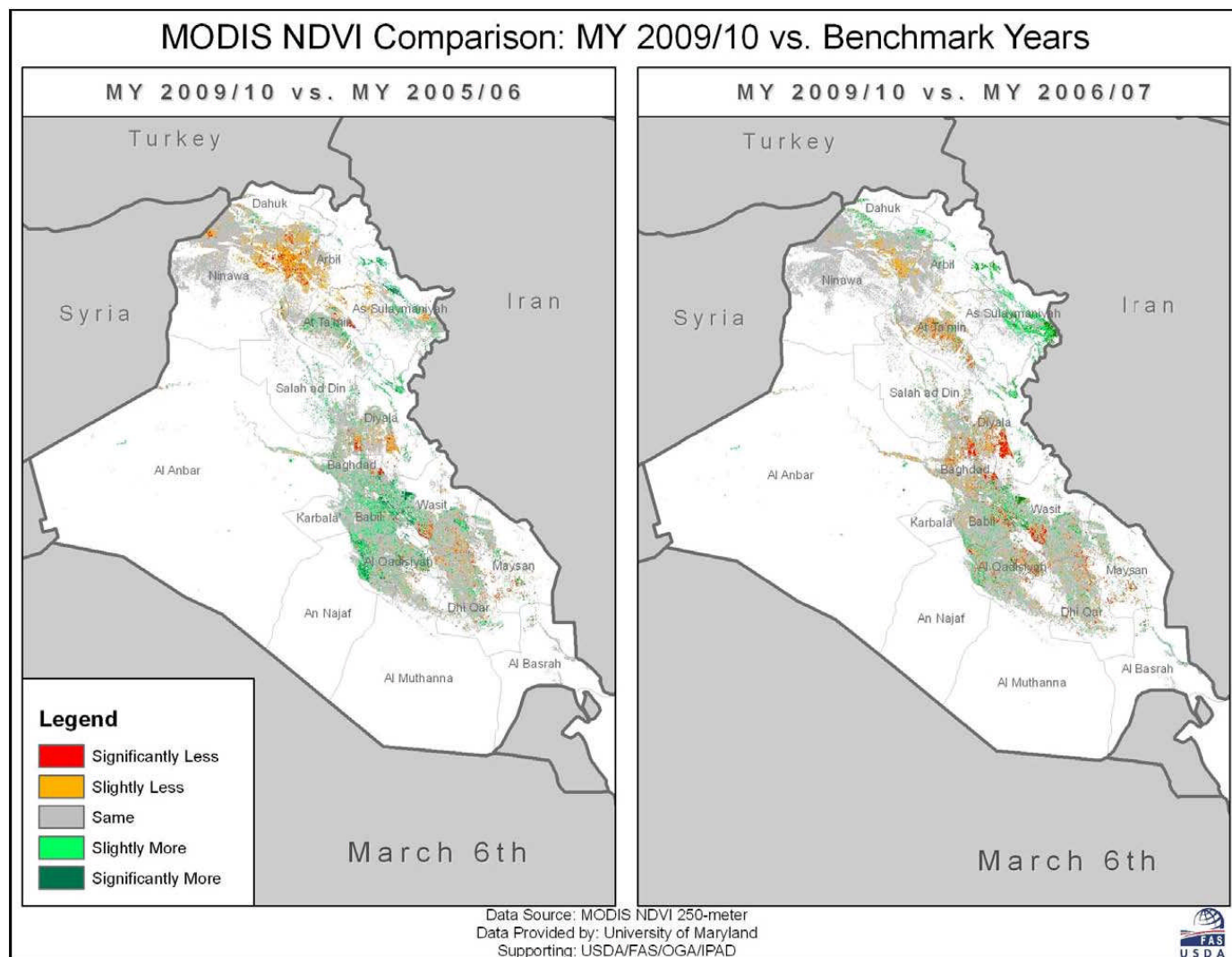


Figure 3: MODIS NDVI change analysis: Current MY 2009/10 compared with benchmark years MY 2005/06 and MY 2006/07.

## March 2009 High Resolution Imagery Acquisitions



Figure 4: High resolution imagery acquisitions: Areas of Interest (AOI).

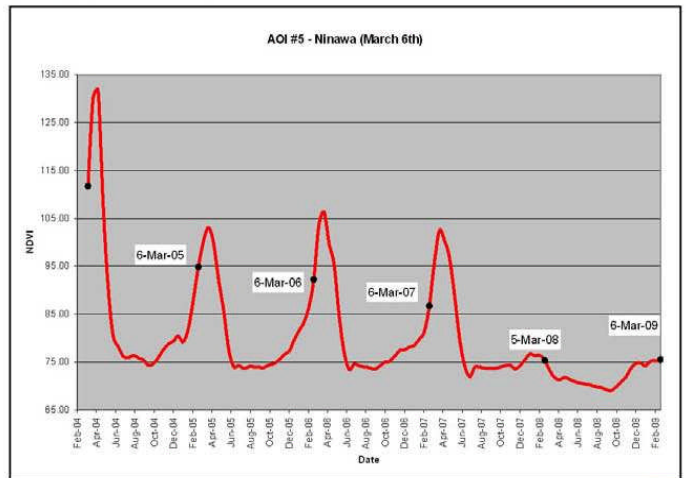
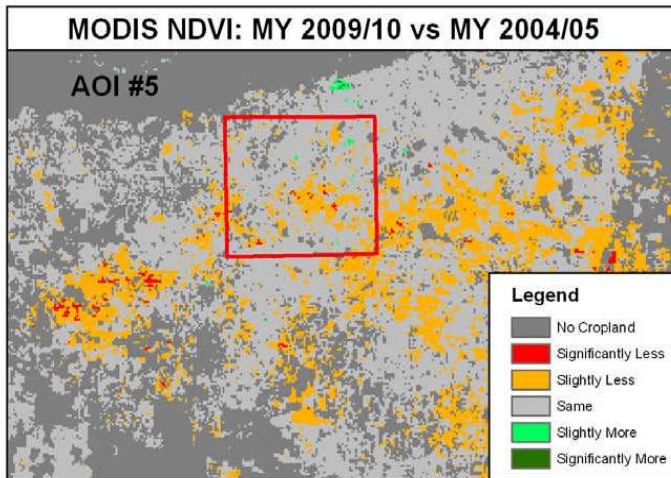
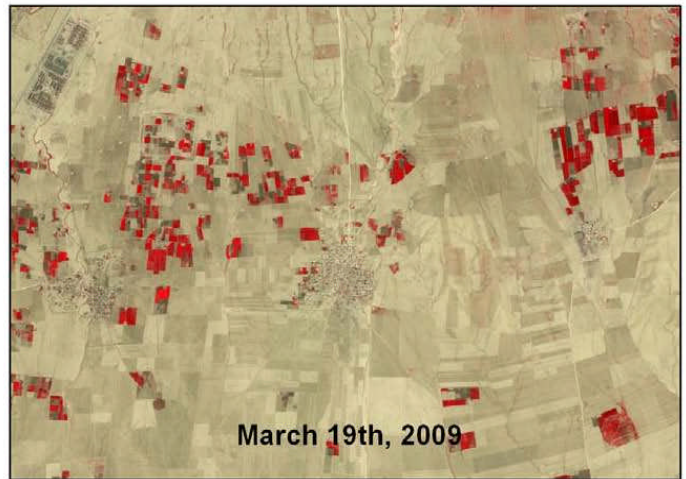
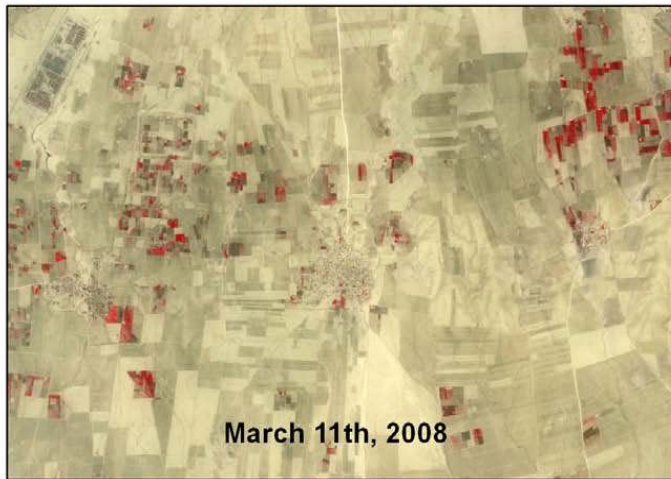
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Figure 5: NDVI time-series analysis based on high resolution imagery sample location: Ninawa.



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**High Resolution Imagery and MODIS NDVI Time-Series Comparison: Ninawa**



Data Source: Quickbird MS and MODIS NDVI  
 Data Provided by: NGA and University of Maryland  
 Supporting: USDA/FAS/OGA/IPAD



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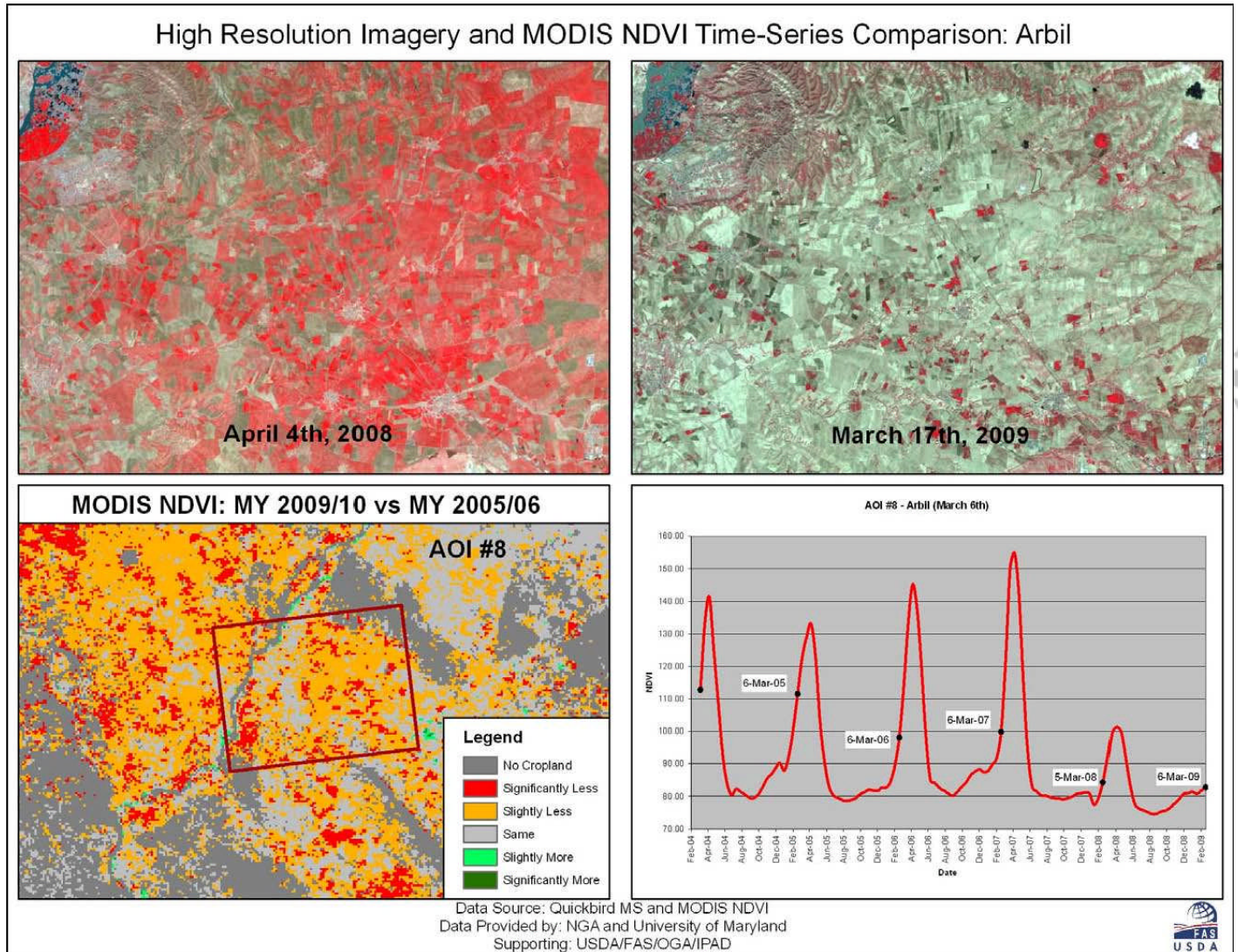


Figure 6: NDVI time-series analysis based on high resolution imagery sample location: Arbil.



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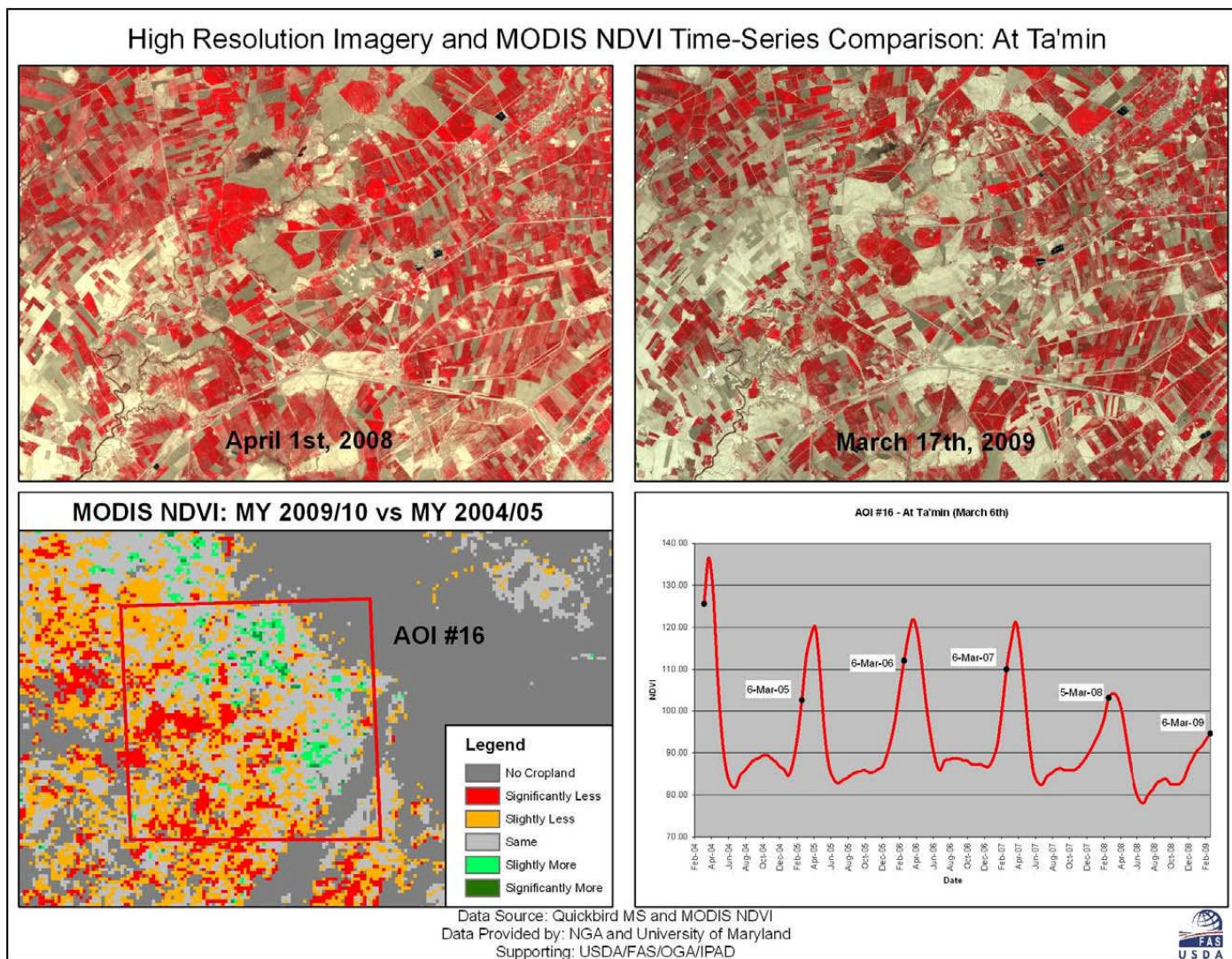
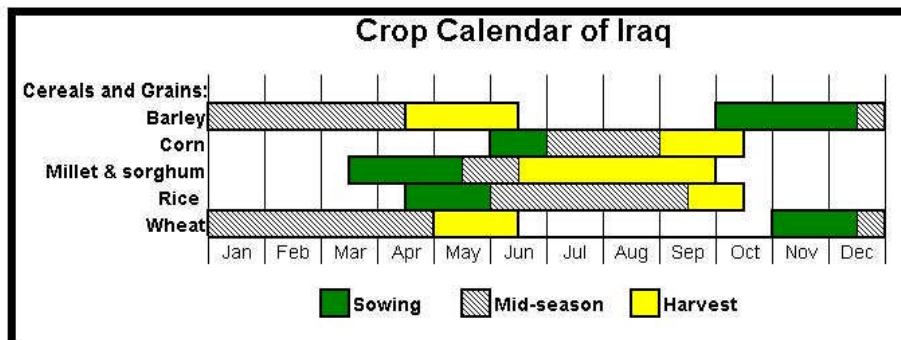
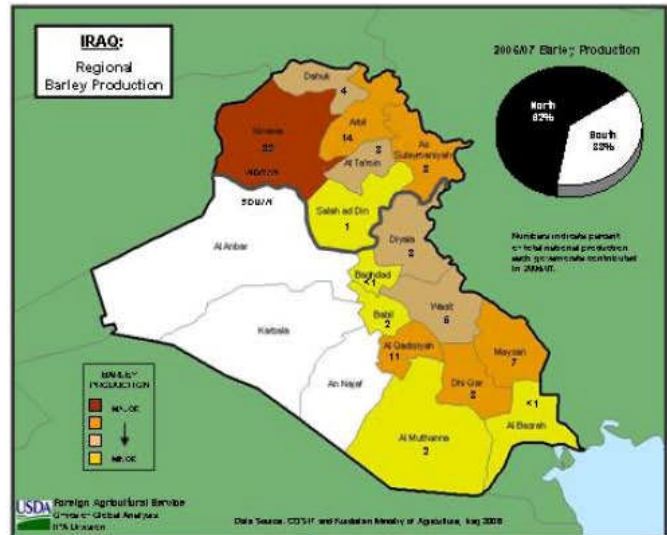
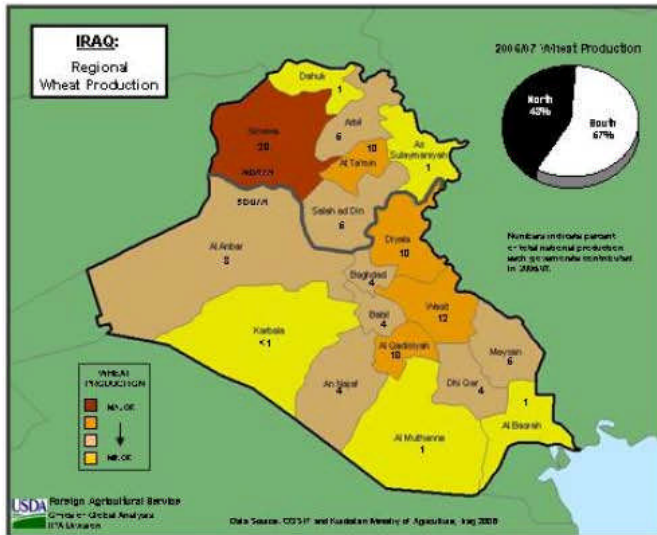
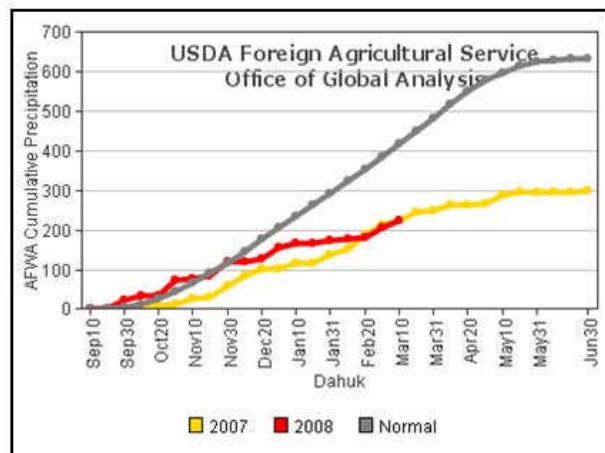
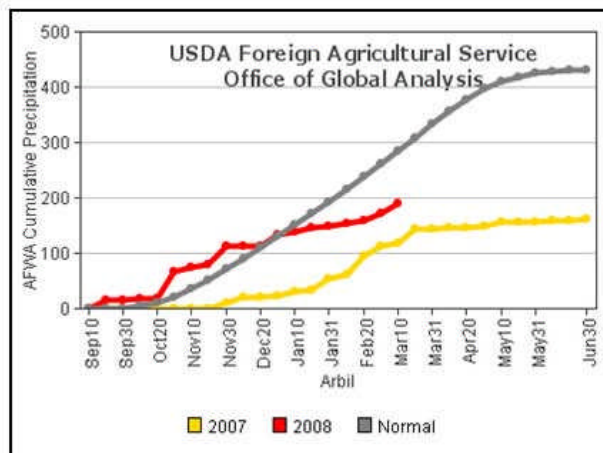
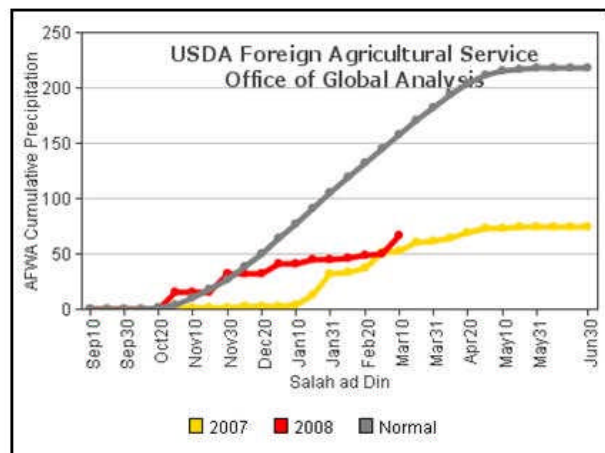
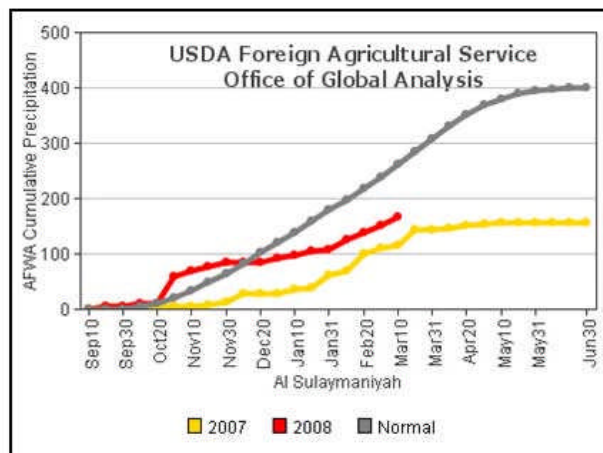


Figure 7: NDVI time-series analysis based on high resolution imagery sample location: At Ta'min.

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**APPENDIX**  
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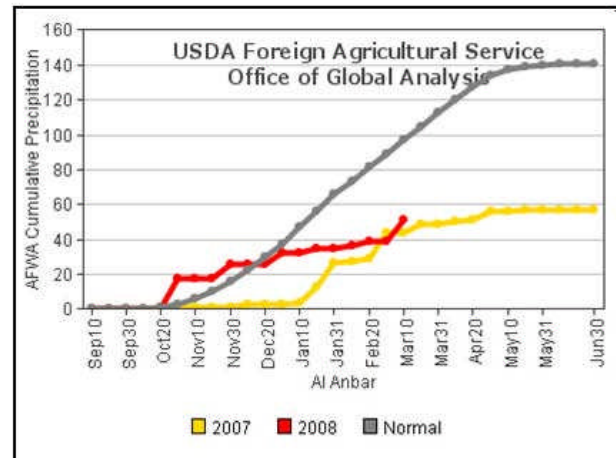
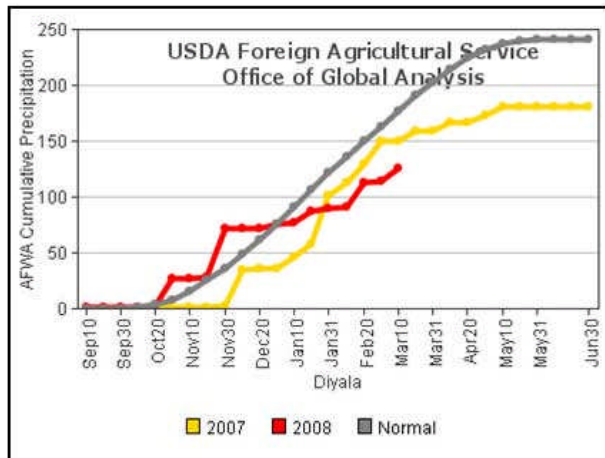
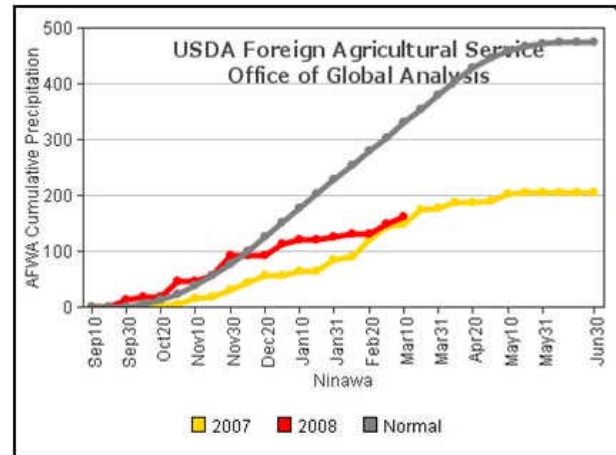
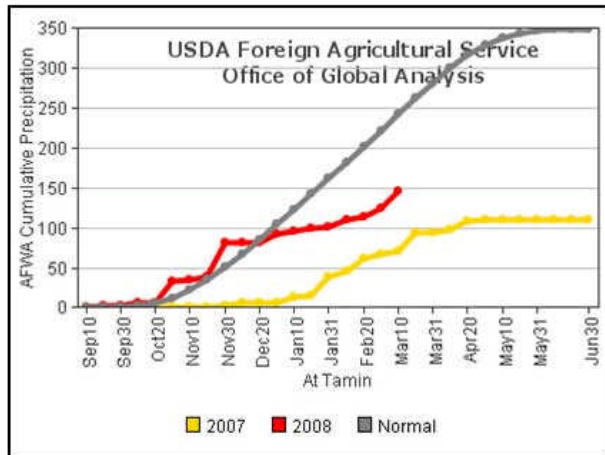
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March 10th, Cumulative Precipitation



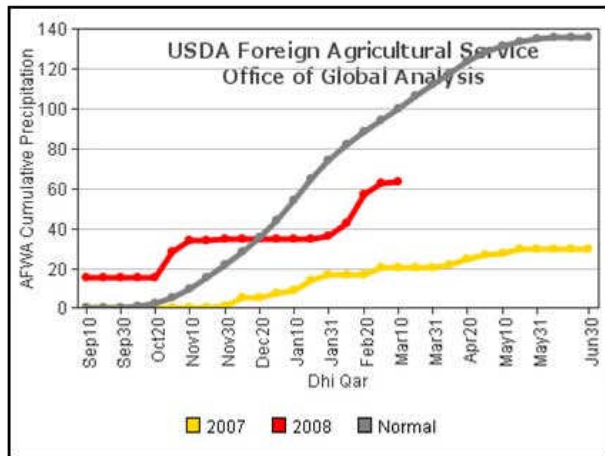
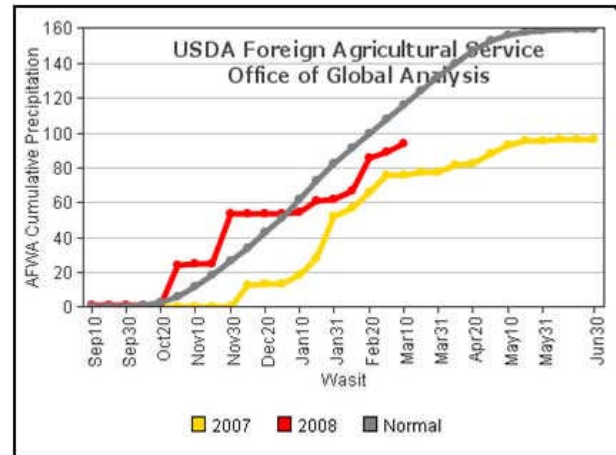
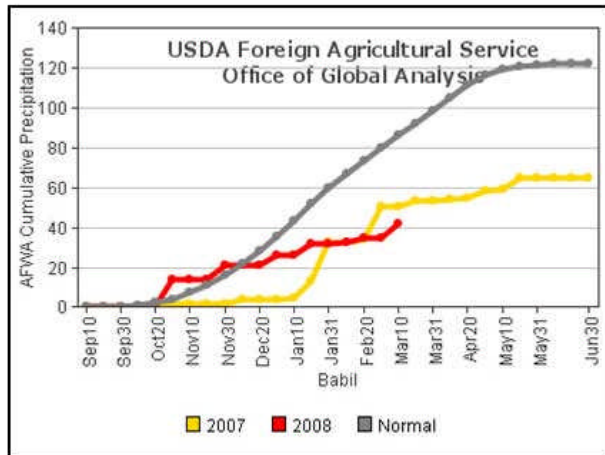
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March 10th, Cumulative Precipitation



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March 10th, Cumulative Precipitation

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